

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Michael J. Rosendaul, Wayne Isbell, James G. Winkel, and David W. Buck

Application No.: **10/707,051**
Confirmation No.: **1050**
Filed: **November 18, 2003**

Group No.: **2878**

Examiner: **D. N. Monbleau**

For: **NIGHT VIEWER ACCOMODATING MULTIPLE IMAGE TUBE TYPES**

Commissioner for Patents
Washington, D.C. 20231

ATTENTION: Board of Patent Appeals and Interferences

APPEAL BRIEF
(37 C.F.R. § 41.37)

Introduction

This brief is in furtherance of the Notice of Appeal, filed in this case on January 27, 2006.

The fees required under § 41.20 are being paid concurrently upon filing of this brief. A petition for extension of time for filing this brief was previously filed and fees therefore paid, and the extension was granted on March 24, 2006.

Table of Contents

Introduction.....	1
I. REAL PARTIES IN INTEREST.....	3
II. RELATED APPEALS AND INTERFERENCES.....	4
III. STATUS OF CLAIMS.....	5
IV. STATUS OF AMENDMENTS.....	6
V. SUMMARY OF CLAIMED SUBJECT MATTER.....	7
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL.....	9
VII. ARGUMENT.....	10
VII(A). ARGUMENTS--REJECTIONS UNDER 35 U.S.C. § 102.....	11
VII(B). ARGUMENTS—REJECTIONS UNDER 35 U.S.C. § 103.....	14
VIII. APPENDIX OF CLAIMS.....	18
IX. APPENDIX OF EVIDENCE.....	22
X. APPENDIX OF RELATED DECISIONS.....	23
Conclusion	24

The final page of this brief bears the practitioner's signature.

I. REAL PARTIES IN INTEREST
(37 C.F.R. § 41.37(c)(1)(i))

The real party in interest in this appeal is: Litton Systems, Inc., which is a subsidiary of Northrop Grumman Corporation.

II. RELATED APPEALS AND INTERFERENCES
(34 C.F.R. § 41.37(c)(1)(ii))

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal: there are no such related appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS
(37 C.F.R. § 41.37(c)(1)(iii))

A. TOTAL NUMBER OF CLAIMS IN APPLICATION

Claims in the application are: 1-18

B. STATUS OF ALL THE CLAIMS IN APPLICATION

1. Claims canceled: NONE
2. Claims withdrawn from consideration, but not canceled: NONE
3. Claims objected to: NONE
4. Claims allowed or confirmed: NONE
5. Claims rejected: 1-18

C. CLAIMS ON APPEAL

The claims on appeal are: 1-18

IV. STATUS OF AMENDMENTS
(37 C.F.R. § 41.37(c)(1)(iv))

A proposed Amendment After Final was filed 23 December 2005, but the Amendment After Final was not entered because it was stated that the amendment raised "new issues that would require further consideration and/or search."

V. SUMMARY OF CLAIMED SUBJECT MATTER
(37 C.F.R. § 41.37(c)(1)(v))

Claim 1 is the first independent claim and claims 2 through 10 are directly or indirectly dependent upon that one. Similarly, Claim 11 is the second independent claim and claims 12 through 18 are directly or indirectly dependent upon that independent Claim 11. Claim 1 is the product claim and Claim 11 is the counterpart method claim.

The following references to the specification by page and line number correspond to the specification version available as a PDF file from the private PAIR website for the file history of this application.

The present invention as claimed in independent Claims 1 is directed to an adaptive electrical circuit unit (C of Fig. 1; specification p. 6, para. [0019], line 5) used in a night viewer system (V of Fig. 1; specification p. 6, para. [0019], line 6) having an image intensifier tube (10 of Fig. 1; specification p. 6, para. [0019], line 6) and a compatible power source (12 of Fig. 1; specification p. 6, para. [0019], line 8). A voltage gain detection circuit unit (14 of Fig. 1; specification p. 6, para. [0019], line 8) is operably connected to the image intensifier tube (10 of Fig. 1; specification p. 6, para. [0019], line 6) and detects multiple selected types of image intensifier tubes (10 of Fig. 1; specification p. 6, para. [0019], line 6). The voltage gain detection circuit (14 of Fig. 1; specification p. 6, para. [0019], line 9) produces an output gain signal (16 of Fig. 1; specification p. 6, para. [0019], lines 12-13) that is appropriate to the detected image intensifier tube (10 of Fig. 1; specification p. 6, para. [0019], line 6) for controlling the gain of the detected image intensifier tube (10 of Fig. 1; specification p. 6, para. [0019], line 6).

The invention consists of an electrical circuit (C of Fig. 1; specification p. 6, para. [0019], line 5) that senses the electrical or mechanical connection characteristics for various selected types of image intensifier tubes (10 of Fig. 1; specification p. 6, para. [0019], line 6) and controls the power supply and other electrical circuit features responsive to the tube (10 of Fig. 1; specification p. 6, para. [0019], line 6) that is inserted into the night viewer (V of Fig. 1; specification p. 6, para. [0019], line 6).

The main body contains electronic circuitry (C of Fig. 1; specification p. 6, para. [0019], line 5) with terminals that connect the preferred single battery to the electronic circuitry (C of Fig. 1; specification p. 6, para. [0019], line 5) and the electronic circuitry (C of Fig. 1;

specification p. 6, para. [0019], line 5) to and from the image intensification tube (10 of Fig. 1; specification p. 6, para. [0019], line 6) of the night vision system (V of Fig. 1; specification p. 6, para. [0019], line 6). The electronic circuitry (C of Fig. 1; specification p. 6, para. [0019], line 5) converts a single battery input voltage to a level that will operate the night vision system (V of Fig. 1; specification p. 6, para. [0019], line 6) and determines the electrical characteristics of the tube (10 of Fig. 1; specification p. 6, para. [0019], line 6) connected to the night viewer body.

The explanation for the counterpart method claim 11 to product claim 1 is the same as above for independent claim 1.

Dependent claims 4 and 14 each include “a manual gain adjustment means for manually adjusting the desired voltage level signal to the image intensifier tube (10 of Fig. 1; specification p. 6, para. [0019], line 6) by a user”, the underlying reference character for which is 28 of Figs. 1 and 2a; specification p. 7, para [0022], line 14.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL
(37 C.F.R. § 41.37(c)(1)(vi))

A first issue for appeal is whether Claims 1, 3, 4, 9, 11, 13, and 14 have been properly rejected under 35 U.S.C. §102 as being anticipated by *Bowen* (U.S. Patent No. 6,150,650).

A second issue for appeal is whether Claims 2, 5-8, 10, 12, and 15-18 have been properly rejected under 35 U.S.C. §103 as being unpatentable over *Bowen* (U.S. Patent No. 6,150,650).

Grouping of Claims

The claims do not stand or fall together for reasons set forth below under ARGUMENT. The rejected claims have been grouped together in the rejection. Appellants urge that each of the rejected claims stands on its own recitation with the claims being considered to be separately patentable for the reasons set forth in more detail below:

Claims 1 and 11 are the independent claims and the remaining claims are dependent upon one or the other independent claims.

VII. ARGUMENT

In the Office Action of October 26, 2005, the Examiner finally rejected Claims 1, 3, 4, 9, 11, 13, and 14 under 35 U.S.C. §102 as being anticipated by *Bowen* (U.S. Patent No. 6,150,650), and Claims 2, 5-8, 10, 12, and 15-18 under 35 U.S.C. §103 as being unpatentable over *Bowen*.

Applicants respectfully submit that *Bowen* fails to teach each element or limitation as claimed by Applicants in Claims 1, 3, 4, 9, 11, 13, and 14, and it was improper to modify the prior art in the manner suggested by the Examiner to conclude that Claims 2, 5-8, 10, 12, and 15-18 were obvious unless the prior art suggested the desirability of the modification.

Further Applicants submit that a reasonable interpretation of the sole cited reference, *Bowen*, would not have resulted or made obvious the invention recited in the Appellants' claims.

VII(A). ARGUMENTS--REJECTIONS UNDER 35 U.S.C. § 102

The *Bowen* reference describes a device and a method for providing user adjustable variable gain for a specific image intensifier tube type mounted within a night vision device. As *Bowen* teaches, an "image intensifier tube is subjected to factory calibration for providing an optimum output during operation, wherein said calibration undesirably differs from tube to tube." Col. 2, lines 48-62.

While *Bowen* teaches that multiple image intensifier tube types exist, *Bowen* fails to disclose that a single night vision device *may be adapted to use multiple image intensifier tube* types as replacements for the original equipment tube. *See* Cols. 1-2. *Bowen's* device, unlike that of the present invention, only teaches a night vision device that uses a single tube type and the calibration differs from tube to tube. While the *Bowen* tubes may be changed, the tube types are not changed or replaceable, thereby limiting the usefulness in field use of the night vision devices where the same tube type may not always be available.

The *Bowen* patent centers around an MX-10160 image tube with a flex tail that goes into an AN/PVS-14 monocular system. The *Bowen* patent talks about electronics for tube and power supply interfacing to a Night Vision Goggle ("NVG") system which resides both inside and outside of the image tube package. *See Bowen*, column 3, lines 36 through 44 and lines 60 through 63.

As conceded by *Bowen*, "one skilled in the art" would know that the electronic package for MX-10160 is "stuffed to the gills" with electronics (there is no extra volume for enhancement electronics). This is the novelty to the *Bowen* patent as some electronics is mounted outside the MX-11769 tube package coupled to the *Bowen* claims. *See Bowen*, column 3, lines 60 through 63.

Claims 1 and 11

Independent Claim 1 recites the following elements (also comparably found in independent method claim 11), the most pertinent to this discussion being presented in bold type for the convenience of the Board:

1. An adaptive electrical circuit unit for use in a night viewer system of the type that includes an image intensifier tube and a compatible power source electrically connected to the image intensifier tube, the invention comprising:

a voltage gain detection circuit unit operably connected to the image intensifier tube for detecting **multiple selected types of image intensifier tubes** and producing an output gain signal appropriate to the **detected image intensifier tube** for controlling the gain of the detected image intensifier tube.

When *Bowen* is read in its entirety, the use of multiple image tube *types* in the night vision device of the Applicants' invention as claimed is neither disclosed nor suggested by *Bowen* that merely discloses substitution of "one tube for another." *Bowen*, Claim 1, lines 6-7. Applicants suggest that the claimed structure of the present invention is neither identical to nor disclosed by the *Bowen* device. Therefore, *Bowen* cannot anticipate the present claimed invention.

Moreover, the allegedly prior art device lacks the functional characteristics of the claimed structure of the method claim in the present application. The *Bowen* device does not have the capability to accept multiple image intensifier tube types and to provide the proper gain for the type of tube used or selected.

Even if the *Bowen* patent incidentally showed a similar arrangement of parts, if that arrangement is neither claimed nor designed to perform the function of the present invention, neither patent can act as an anticipation.

Claims 3 and 13 - Claims 3 and 13 further limit respective independent claims 1 or 11 by requiring a variable resistor circuit unit be operably connected between the voltage gain detection circuit unit and the image intensifier tube to provide a desired voltage level signal to the image intensifier tube. No such combination is taught or suggested by *Bowen*.

Claims 4 and 14 - Claims 4 and 14 further limit respective dependent claims 3 or 13 by requiring that the variable resistor circuit further includes a manual gain adjustment means for

manually adjusting the desired voltage level signal to the image intensifier tube by a user. No such combination is taught or suggested by *Bowen*.

Claim 9 - Claim 9 further limits respective independent claim 1 by requiring that the power source includes a direct current (DC) to direct current (DC) voltage step-up converter circuit unit for providing a desired power supply voltage signal to the image intensifier tube. No such combination is taught or suggested by *Bowen*.

VII(B). ARGUMENTS—REJECTIONS UNDER 35 U.S.C. § 103

In making a determination that an invention is obvious, the Patent Office has the initial burden of establishing a *prima facie* case of obviousness. Included in this burden is the requirement that there must be some suggestion or motivation, either in the sole cited reference in the record itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Also, as part of the burden of establishing a *prima facie* case of obviousness, the Patent Office must establish that all of the claim limitations are taught or suggested by the prior art of record. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974).

Applicants' invention is directed toward solving the disadvantage that night vision devices heretofore were designed to accept a single type of image intensifier tube and were not adaptable to accept multiple types of image intensifier tubes. Prior to the present invention the user of a night vision device had to replace the installed image intensifier tube with a tube of the same type, which may not always be readily available. Since night vision devices are often used by members of the military during operations and maintenance supplies may be limited, there is a need for the night vision device to be adapted to use another tube type that might be available. *See Bowen* which addressed the only issue of interchanging one tube with another tube of the same type. *See Bowen*, column 2, lines 23 through 43 and other places that talks about the differences in calibration between two tubes that need to be specifically calibrated for the system since the tube itself "does not offer variable gain." *Bowen*, column 2, lines 17.

Even if one were to insert (and there is no suggestion of doing so in *Bowen*) another image intensifier tube type in *Bowen*'s night vision device, the night vision device would not have the independent capability to determine the type of replacement tube and establish the proper electronic signals necessary for operation of that specific tube type different than the tube type being replaced.

It is improper to use hindsight having read the Applicants' disclosure to "pick and choose" among isolated prior art references to disparage the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Thus, the mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 972 F.2d 1260,

U.S.P.Q.2d 1780 (Fed. Cir. 1992). Finally, it is the invention as a whole that is important. Focusing on the obviousness of substitutions and differences, instead of on the invention as a whole, is a legally improper way to simplify the often difficult determination of obviousness. *Gillette Co. v. S. C. Johnson & Son, Inc.*, 919 F. 2d 720, 16 U.S.P.Q. 1923 (Fed. Cir. 1990).

Independent Claim 1 recites the following elements, the most pertinent to this discussion being presented in bold type for the convenience of the Board:

1. An adaptive electrical circuit unit for use in a night viewer system of the type that includes an image intensifier tube and a compatible power source electrically connected to the image intensifier tube, the invention comprising:

a voltage gain detection circuit unit operably connected to the image intensifier tube for detecting **multiple selected types of image intensifier tubes** and producing an output gain signal appropriate to the **detected image intensifier tube** for controlling the gain of the detected image intensifier tube.

Applicants respectfully submit that *Bowen* does not disclose, teach, or suggest a means to detect multiple selected types of image intensifier tubes as recited by amended Claim 1 and Claim 11. Therefore, the Claims are not obvious in light of the cited art and Applicants respectfully submit that this rejection should now be reversed.

Further, in order to establish a prima facie case of obviousness, the prior art teachings must be sufficient to suggest making the substitution or modification necessary to make the claimed invention to one of ordinary skill in the art, *In re Lalu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1984), in the absence of applicant's own disclosure.

Claims 2 and 12 - Claims 2 and 12 further limit respective independent claims 1 or 11 by requiring a voltage bias circuit unit be operably connected between the voltage gain detection circuit unit and the image intensifier tube for providing a desired voltage gain signal to the image intensifier tube in response to the output gain signal from the voltage gain detection circuit unit. *Bowen* fails to suggest making the substitution or modification necessary to make the claimed invention to one of ordinary skill in the art in the absence of Applicants' disclosure.

Claims 5 and 15 - Claims 5 and 15 further limit respective independent claims 1 or 11 by further requiring an amplifier circuit unit be operably connected between the voltage gain detection circuit unit and the image intensifier tube for providing a desired amplified voltage signal to the image intensifier tube for bias adjustment of the image intensifier tube. *Bowen* fails to suggest making the substitution or modification necessary to make the claimed invention to one of ordinary skill in the art in the absence of Applicants' disclosure.

Claims 6 and 16 - Claims 6 and 16 further limit respective dependent claims 5 or 15 by further requiring a current limiting circuit unit for controlling an amount of electrical current of the amplified voltage signal to the image intensifier tube. *Bowen* fails to suggest making the substitution or modification necessary to make the claimed invention to one of ordinary skill in the art in the absence of Applicants' disclosure.

Claims 7 and 17 - Claims 7 and 17 further limit respective dependent claims 5 or 15 by further requiring a variable resistor circuit be operably connected between the amplifier circuit unit and the voltage gain detection circuit unit for providing a desired voltage level signal to the amplifier circuit unit. *Bowen* fails to suggest making the substitution or modification necessary to make the claimed invention to one of ordinary skill in the art in the absence of Applicants' disclosure.

Claims 8 and 18 - Claims 8 and 18 further limit respective claims 3 or 11 by further requiring an amplifier circuit unit be operably connected between a variable resistor circuit unit and the image intensifier tube for providing a desired voltage signal to the image intensifier tube. *Bowen* fails to suggest making the substitution or modification necessary to make the claimed invention to one of ordinary skill in the art in the absence of Applicants' disclosure.

Claim 10 - Claim 10 further limits respective independent claim 7 by requiring a voltage bias circuit unit operably connected between the voltage gain detection circuit unit and the image intensifier tube for providing a desired voltage gain signal to the image intensifier tube in response to the output gain signal from the voltage gain detection circuit unit. *Bowen* fails to suggest making the substitution or modification necessary to make the claimed invention to one of ordinary skill in the art in the absence of Applicants' disclosure.

The Board should also reverse the rejections because there is no teaching or disclosure in the prior art of record that would have suggested to the artisan the obviousness of providing a means to detect multiple selected types of image intensifier tubes or the various other features in

the dependent claims identified above. To hold otherwise would amount to picking and choosing various aspects of the reference without consideration of the overall teaching of the reference. This amounts to improper hindsight, using the Applicants' claims as a template to pick and choose various features of the prior art reference without considering the impact of modifying such features would have on the underlying invention disclosed in the reference.

VIII. APPENDIX OF CLAIMS
(37 C.F.R. § 41.37(c)(1)(viii))

The text of the claims involved in the appeal are:

Claim(s)

1. An adaptive electrical circuit unit for use in a night viewer system of the type that includes an image intensifier tube and a compatible power source electrically connected to the image intensifier tube, the invention comprising:
 - a voltage gain detection circuit unit operably connected to the image intensifier tube for detecting multiple selected types of image intensifier tubes and producing an output gain signal appropriate to the detected image intensifier tube for controlling the gain of the detected image intensifier tube.
2. The invention of claim 1 further including a voltage bias circuit unit operably connected between the voltage gain detection circuit unit and the image intensifier tube for providing a desired voltage gain signal to the image intensifier tube in response to the output gain signal from the voltage gain detection circuit unit.
3. The invention of claim 1 further including a variable resistor circuit unit operably connected between the voltage gain detection circuit unit and the image intensifier tube for providing a desired voltage level signal to the image intensifier tube.

4. The invention of claim 3 wherein the variable resistor circuit further includes a manual gain adjustment means for manually adjusting the desired voltage level signal to the image intensifier tube by a user.
5. The invention of claim 1 further including an amplifier circuit unit operably connected between the voltage gain detection circuit unit and the image intensifier tube for providing a desired amplified voltage signal to the image intensifier tube for bias adjustment of the image intensifier tube.
6. The invention of claim 5 further including a current limiting circuit unit for controlling an amount of electrical current of the amplified voltage signal to the image intensifier tube.
7. The invention of claim 5 further including a variable resistor circuit operably connected between the amplifier circuit unit and the voltage gain detection circuit unit for providing a desired voltage level signal to the amplifier circuit unit.
8. The invention of claim 3 further including an amplifier circuit unit operably connected between a variable resistor circuit unit and the image intensifier tube for providing a desired voltage signal to the image intensifier tube.

9. The invention of claim 1 wherein the power source includes a direct current (DC) to direct current (DC) voltage step-up converter circuit unit for providing a desired power supply voltage signal to the image intensifier tube.
10. The invention of claim 2 wherein the DC to DC voltage step-up converter circuit boosts the voltage of the power source by two times.
11. A method for using multiple image intensifier tube types in a night viewer system of the type that includes a compatible power source, the method comprising the steps of:
 - detecting a specific image intensifier tube type from a multiple selected types of image intensifier tubes using a voltage gain detecting circuit unit operably connected to the image intensifier tube; and,
 - producing an output gain signal appropriate to the detected image intensifier tube for controlling the gain of the detected image intensifier tube.
12. The method of claim 11 further including a voltage bias circuit unit operably connected between the voltage gain detection circuit unit and the image intensifier tube for providing a desired voltage gain signal to the image intensifier tube in response to the output gain signal from the voltage gain detection circuit unit.
13. The method of claim 11 further including the step of providing a desired voltage level signal to the image intensifier tube using a variable resistor circuit unit operably connected between the voltage gain detection circuit unit and the image intensifier tube.

14. The method of claim 13 wherein the variable resistor circuit further includes a manual gain adjustment means for manually adjusting the desired voltage level signal to the image intensifier tube by a user.
15. The method of claim 11 further including the step providing a desired amplified voltage signal to the image intensifier tube for bias adjustment of the image intensifier tube using an amplifier circuit unit operably connected between the voltage gain detection circuit unit and the image intensifier tube.
16. The method of claim 15 wherein the amplifier circuit unit further includes a current limiting circuit unit for controlling an amount of electrical current of the amplified voltage signal to the image intensifier tube.
17. The method of claim 15 further including a variable resistor circuit operably connected between the amplifier circuit unit and the voltage gain detection circuit unit for providing a desired voltage level signal to the amplifier circuit unit.
18. The method of claim 11 further including the step of providing a desired voltage signal to the image intensifier tube using an amplifier circuit unit operably connected between the variable resistor circuit unit and the image intensifier tube.

IX. APPENDIX OF EVIDENCE
(37 CFR § 41.37(c)(1)(ix))

There is no evidence submitted herewith pursuant to 37 CFR §§ 1.130, 1.131 or 1.132.

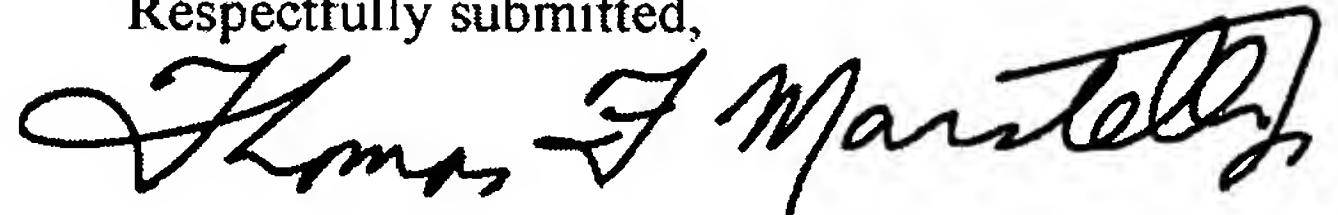
X. APPENDIX OF RELATED DECISIONS
(37 CFR § 41.37(c)(1)(x))

There have been no decisions rendered by a court or the Board in any related appeals or interferences.

Conclusion

In conclusion, for the above reasons Applicants respectfully request the Board of Patent Appeals and Interferences to reverse the rejection of claims 1-18 by the Examiner. The application should be returned to the Examiner with directions to allow these claims and pass this application to issue.

Respectfully submitted,



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